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A PUTATIVE HYBRID BETWEEN *PRASOPHYLLUM ARCHERI* AND *P. DESPECTANS* (ORCHIDACEAE)

R. Bates,
Portmarnock Street, Fairview Park, South Australia 5126
and J.Z. Weber,
State Herbarium, Botanic Garden, North Terrace,
Adelaide, South Australia. 5000

Abstract

A putative natural hybrid between *Prasophyllum archeri* Hook.f. and *P. despectans* Hook.f. is reported from Glencoe, South-Eastern region, South Australia. The differences between the putative hybrid and its parents are tabulated and illustrated.

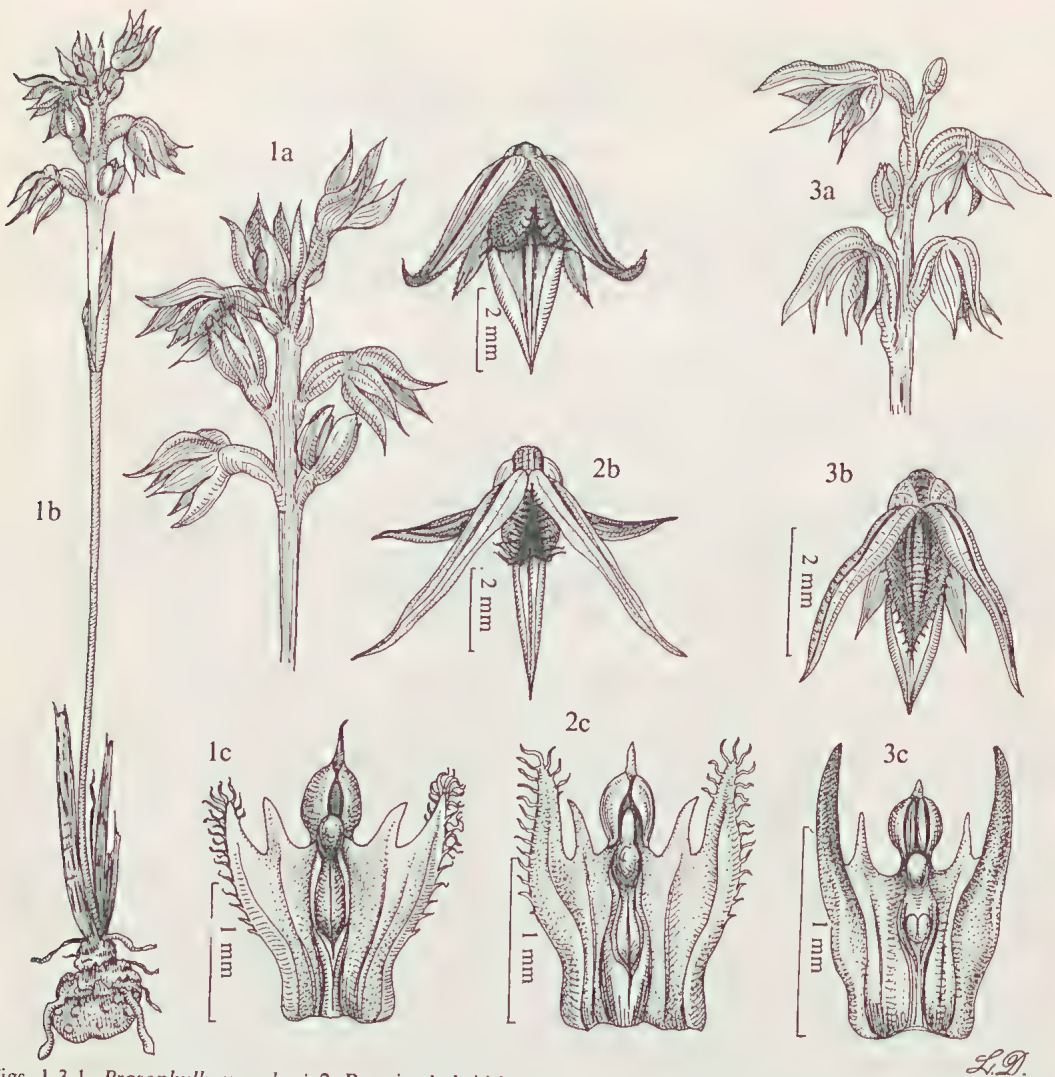
Plants with many morphological characters intermediate between *P. archeri** Hook.f. (1858) (syn. *P. intricatum* Stuart ex Benth., 1873, *P. ciliatum* Ewart & Rees, 1912) and *P. despectans** Hook.f. (1858) (syn. *P. brachystachyum* sensu A.J. Ewart, 1931, non Lindl., 1840) were collected with these species by R. Bates near Glencoe at Honan's Scrub,Woods & Forest Department Reserve (37° 42′ S; 140° 37′ E) on 15 April, 1976, and again in April 1977 and 1978.

Both species are commonly and widely distributed through some 50 hectares of bush, occurring predominantly in leached sands on the margins of swamp and flowering most profusely in areas burnt the previous spring. The incidence of heavy rains affects the flowering times of both species, especially *P. archeri* which may flower earlier following heavy rains in late summer. Both species are usually found in association with *Xanthorrhoea australis* R.Br. (grass tree).

P. archeri occurs in South Australia in the Southern Lofty and South-Eastern regions and in all eastern Australian States, flowering from mid-March through May in South Australia and western Victoria. Its height varies from 5 to 25 cm and inflorescences contain 2 to 15 flowers: the voucher specimen is 15 cm tall and has 7 flowers. *P. despectans* is presently known in South Australia from a single locality in the South-Eastern region. Due to the diminutive size of both *P. archeri* and *P. despectans* it was not until 1970 *(P. archeri)* and 1976 *(P. despectans)* that the species were first collected in the South-East, but it is likely that they were widespread in the region before extensive destruction of habitat. *P. despectans* occurs elsewhere; in south-eastern New South Wales, is widespread through western Victoria and Tasmania and flowers from mid-February through April in South Australia and western Victoria. Its height varies from 5 to 20 cm and inflorescences have few to many (-40) flowers: the voucher specimen is 7 cm tall and has 3 flowers. The putative hybrid voucher specimen is 10 cm tall and has 4 flowers. Both species are visited by the same insect species, identified at the South Australian Museum as a drosophilous fly *(Chloropidae)*.

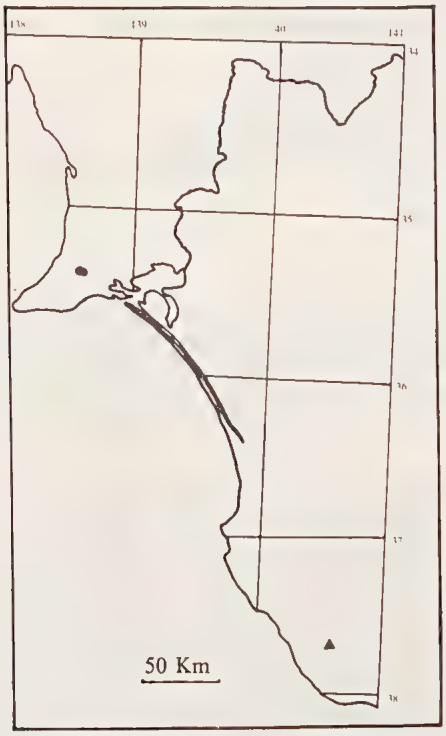
Only six specimens of the putative hybrid have been collected over three years, partly because the extremely small size of the plants makes detection and identification in the field difficult. No evidence of back crossing was found and the absence of mature capsules may suggest infertility in the hybrid. The authors have found no other evidence of hybridization between species of *Prasophyllum* in the literature. The absence of intermediates between the putative hybrid and parents makes it improbable that the hybrid is a phenotypic product of local variation in environmental conditions.

* Identification of the parent species accords with current literature (e.g. Weber & Bates, 1978), but the section to which they belong is under revision by Mr D. Blaxell (National Herbarium of N.S.W.) and their names are subject to possible alteration.



Figs. 1-3 1. *Prasophyllum archeri.* 2. Putative hybrid between *P. archeri* and *P. despectans.* 3. *P. despectans* (a, raceme; b, flower; c, column from the front more or less opened). Note that several features, for example labellum shape and the angle of the sinus between the lateral sepals, can not be determined from the illustration due to the affect of perspective. Illustrations by L. Dutkiewicz.

In Table 1 the more important characters of the putative parental species and the putative hybrid are indicated. The specimens illustrated (Figs. 1-3), and on which Table 1 is based, were selected to represent the entire known morphological range of this population. The putative hybrid shows intermediacy in the dimensions of many vegetative and floral structures. The perianth of the hybrid tends to be less spreading than in *P. archeri* but more than in *P. despectans.* The petals are longer than either parent. The colour of the petals of *P. archeri* is green, of the putative hybrid greenish towards the base but purplish towards the apex, and of *P. despectans* purple throughout. The labellum of the hybrid resembles that of *P. archeri* in having a ciliate margin, but is intermediate in shape between the parent species. The most conspicuously intermediate character is in the column appendages (Fig. 2c) which equal the anthers in height; in *P. archeri* (Fig. 1c) they are shorter; those in *P. despectans* (Fig. 3c) exceed the anthers. Like *P. archeri,* but unlike *P. despectans,* these appendages are fimbriate in the hybrid. The anther point of the hybrid is intermediate in



Map 1. Occurrence in South Australia of *Prasophyllum archeri, P. despectans* and their putative hybrid (triangle). and further distribution of *P. archeri* (dot).

length between the parents. The ovary has not been observed to become swollen after fertilization as in *P. archeri* and *P. despectans* the ovaries of which reach 1 mm or more in diameter. This is considered as an indication of sterility.

Specimens examined

P. archeri x *despectans*

SOUTH AUSTRALIA: South-Eastern Region (13). Honan's Scrub, 37° 42′ S; 140° 36′ E, *R. Bates s.n.*, (AD 97807180). This sheet includes a specimen of each parent and of the putative hybrid. Coloured photographic prints are included with the specimens. Honan's Scrub, *R. Bates 724* (AD 97846390).

P. archeri

SOUTH AUSTRALIA: Southern Lofty Region (11). Mount Compass, 35° 21′ S; 138° 37′ E, *E. Ashby s.n.*, (AD 97518186); *McEwan s.n.*, (Herb. *R.S. Rogers 2720;* (AD 97736209), Herb, *R.S. Rogers 2721;* (AD 97736212)). *R.S. Rogers 2718* (AD 97316323, AD 97736211, AD 97736213). *R.S. Rogers 2719* (AD 97736210). Nangkita, 35° 21′ S; 138° 42′ E, *R. Bates 1004* (AD 97614237).

South Eastern Region (13). Honan's Scrub, *R. Bates 1052* (AD 97629433). *R.C. Nash s.n.* (AD 97027092).

P. despectans

SOUTH AUSTRALIA: South Eastern Region (13). Honan's Scrub, *R. Bates 1050* (AD 97629429).

Table 1. Characters by which *Prasophyllum archeri* and *P. despectans* differ and the state of these characters in the putative hybrid.

Feature	P. archeri	Putative hybrid	P. despectans
Plant height	6-14 cm	8-12 cm (6 collections)	5-20 cm
Scape diameter	c. 0.8 mm	c. 0.5 mm	c. 0.4 mm
Flower number	3-8, crowded	3-15, not crowded	3-20, not crowded
Distance between tips of lateral sepals	c. 7 mm	c. 5 mm	3-4 mm
Flower colour	red and green	purple and green	purplish
Labellum dimensions	c. 3 x 1.5 mm	c. 3 x 1 mm	c. 2.5 x 0.6 mm
Labellum colour	green, edge red	maroon	purple
Labellum margin	ciliate	ciliate	irregularly serrulate to entire
Labellum apex	bluntly acute, recurved	acute, recurved	acuminate, straight
Lateral sepal length	4-5 mm	4-5 mm	3-4 mm
Lateral sepal shape	crescentic	curved, divergent	straight, divergent
Angle of sinus between lateral sepals	more than 90°	75° — 90°	45° — 60°
Petal dimension	c. 3 x 0.9 mm	c. 4 x 0.9 mm	c. 1.5 x 0.6 mm
Petal shape	lanceolate, straight	narrow lanceolate, falcate	ovate, acuminate falcate
Column appendages	shorter than anther point fimbriate	as high as anther point fimbriate	higher than anther point smooth.
Column tip	wide, bluntly acute, straight	acute, straight	acuminate, incurved
Anther appendage	c.0.4 mm long, acuminate	c. 0.25 mm long, acute	c. 0.05 mm long, mucronate
Ovary diameter (unfertilized)	c.0.7 mm	c. 0.7 mm	c. 0.5 mm

The characters are based on the limited number of specimens examined from Honan's Scrub.

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